DBMS

Chapter1

Why we use DBMS

How is it useful?

* Data redundancy and Inconsistancy – various files have different formats.
* Difficulty in accessing data – Not specific to the demands of the company.
* Data Isolation – Data in a lot of locations not helpful
* Integrity problems
* Atomicity problems – what If the computer having the data crashes ?
* Concurrent access anomalies – More than one person makes changes to a file something is gonna go wrong
* Security problems

View of Data

Basically how is data stored?

* Physical level – how it is actually stored as in like data structures.
* Logic Level - what type of data and how are they related?
* View level – Highest level of abstraction, this is the most complex level. The view level exsists to simplify the interaction with the system.

Instance- Database change often and each change is called an instance of the database.

Schema – The overall design of a database.

Logical schema is very Important as that’s what programmers require.

DATA MODEL –

The structure of a database is known as a Data model. This helps to design a database at all levels.

Many types of data models

4 main are

* Relational Model – Basically makes tables of data and tries to form a relationship between the tables
* ER (Entity relationship) Model – Uses a collection of basic objects and forms relations between them
* Object oriented Data model – Software development methodology
* Semi structured data model – sane set of data item may have different types of attributes. XML is widely used.

Database languages

Data Definitive language (DDL ) specify the database schema

It is used to specify additional properties of data, the structure storage and access methods are specifies using the DDL. Data must satisfy some consistency constraints, some values cant be negative and so on.

* Domain constraints – Only the right data can be input into the right fields.
* Referential integrity – So related data must repeat on different locations in the database.
* Assertions – Set of rules that must be followed like at least, utmost etc.
* Authorizations – who can access what documents

Data manipulative language express queries and updates.

DML includes retrieval, insertion, deletion and modification of information

Two types of DMLs

Procedural DMLs – needs to specify what data and how to get the data

Declarative DMLs - only what type of data.

Query

A query is a statement requesting the retrieval of information.

Relational Database – Used to represent both table of data and its relationship.

ER Relationship model

The ER data mdoel uses a collection of basic objects called entities and forms a relationship between the objects.

Entities are described in a databse by a set of attributes.

Entity set are represented by a rectangular box with a entity set name in the header and the attributes listed below it.